

66481

5(3) 5.3900

SOV/20-129-1-27/64

AUTHORS: Aren, A. K., Vanag, G. Ya., Academician, AS Latv SSR

TITLE: 2-Ethylenimine-2-phenylindandione-1,3

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 129, Nr 1,
pp 98 - 101 (USSR)

ABSTRACT: The authors have been studying the amino derivatives of 2-substituted indandiones-1,3 for several years (Refs 1-5). These compounds are not only of theoretical but also of practical interest because many of them are physiologically effective (Ref 6). The authors also attempted to introduce the ethyleneimine group into the indandione molecule. β -diketones containing the latter group in their active methylene group have not been described. The compound named in the title (II) is formed even at room temperature by the interaction of 2-bromine-2-phenylindandione-1,3 (I) (see Diagram) with ethylenimine in ethereal solution. For economical reasons triethylamine (Ref 7) may be used instead of ethylenimine for the combination of hydrogen bromide. The substance cited in the title is greenish yellow, crystalline, and readily soluble in organic solvents. If its solution in absolute ether is saturated with hydrogen chloride, a white, salt-like HCl salt of 2- β -chloroethylamino-2-phenylindandione-1,3 (III) is precipitated.

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2-Ethylenimino-2-phenylindandione-1,3

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It was formed due to the opening of the ethylenimine ring by HCl. Hydrogen bromide and hydrogen iodide have an analogous effect (Refs 8,9). The authors proved (in contradiction to M. Yu. Lidak, S. A. Giller and A. Ya. Medne (Ref 7) that hydrogen halides open the above mentioned ring in an anhydrous medium. The structure of (III) mentioned (see Diagram) was proved to be correct by the synthesis of substance (IV) described earlier (Ref 2) which could be transformed into (III) by the effect of thionyl chloride. Since the compound contains a secondary amino group it yields a corresponding nitroso- and acetyl derivative. The authors thank M. Lidak for the ethylenimine provided by him. There are 11 references, 7 of which are Soviet.

ASSOCIATION: Rzhzskiy politekhnicheskii institut (Riga Polytechnic Institute)

SUBMITTED: July 10, 1959

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5(4)
AUTHORS:

Neyland, O. Ya., Vanag, G. J. (Riga) SOV/74-28-4-4/6

TITLE:

Spectroscopic Investigation Methods of the Tautomerism of β -Dicarbonyl Compounds (Spektroskopicheskiye metody issledovaniya tautomerii β -dikarbonil'nykh soyedineniy)

PERIODICAL:

Uspekhi khimii, 1959, Vol 28, Nr 4, pp 436-464 (USSR)

ABSTRACT:

In this survey the authors attempted to generalize the existing material on spectroscopic investigations of keto-enols. At the same time several theoretical questions occurring in connection with spectroscopic data are discussed. In order to systematize the existing material above all various states and forms of equilibrium of β -dicarbonyl compounds had to be investigated. The diversity of the possible forms indicates complicated phenomena of the tautomerism of keto-enols thus justifying the application of spectroscopic investigation methods. Moreover, spectral properties of the individual forms are characterized. The dicarbonyl form (I) of the aliphatic and alicyclic β -dicarbonyl compounds has no chromomorphous system but only 2 isolated carbonyl groups. For this reason it is

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 β -Dicarbonyl Compounds

characterized in the usual ultra violet zone by an only small absorption at 270 - 290 m μ . The absorption zone of the carbonyl groups is rather broad for various types of carbonyl compounds. But in the case of an individual type and even an individual compound the position of the maximum changes according to the polarity of the solvent. In the transition of a polar (e. g. methanol) to an apolar (e. g. hexane) solvent a bathochromic shift is observed (a shift of the absorption maximum in the direction of long waves) (Ref 10). Unsaturated or aromatic β -dicarbonyl compounds show a very complicated picture. In these cases there is a characteristic chromomorphous system, carbonyl group - double bond (aromatic cycle), which absorbs intensively in the respective zone. In computations the absorption of the dicarbonyl form $\epsilon_k \neq 0$ has to be considered which renders the determination of the quantity of the enol form very difficult. Valence oscillations of the non-conjugated carbonyl group are characterized by the frequencies 1700 - 1750 cm⁻¹ (Refs 14, 15) and can be clearly distinguished

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Spectroscopic Investigation Methods of the Tautomerism of β -Dicarbonyl Compounds SOV/74-28-4-4/6

in infrared as well as in Raman spectra. In the case of aliphatic β -dicarbonyl compounds with an ester arrangement (acetoacetic ester, etc) 2 characteristic frequencies of the dicarbonyl form are observed: that of the ketone group and that of carbonyl ester in the range of $1710 - 1715 \text{ cm}^{-1}$ and $1739 - 1745 \text{ cm}^{-1}$, respectively. This bipartition of the characteristic frequencies goes back to the mechanic interaction of the oscillations of two independent carbonyl groups (Ref 19). Among the structural factors especially the substitution by halogen atoms at the α -carbon atom influences the degree of the characteristic frequencies. The simplest prototype of the enol form are the α, β -unsaturated ketones or α, β -unsaturated carboxylic acids (III). Such a chromomorphous system is characterized by an intensive absorption in the wide ultra-violet range according to the nature of the substituents R_1, R_2, R_3 , and R_4 which influence the position of the absorption maximum. The enol form is mainly characterized by the valence oscillations of the carbonyl group, the

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Spectroscopic Investigation Methods of the Tautomerism SOV/74-28-4-4/6
of β -Dicarbonyl Compounds

double bond and the hydroxyl group. In contrast to the dicarbonyl form of aliphatic and alicyclic compounds we have in this case a conjugated carbonyl group as well as a conjugated double bond. In the case of a free enol form the recognition of the individual bands becomes more difficult because an intramolecular hydrogen bond may be formed at the expense of the hydroxyl or carbonyl group. The hydrogen bond may change the frequency of the carbonyl group which then may coincide with the frequency of the double bond. The two characteristic frequencies appear most distinctly in Raman spectra. Some authors found a relation between the nature of the metal in the complex and the frequency shift. The fluctuations of the hydroxyl group of the β -dicarbonyl compounds appear in the wide range of $2500 - 3500 \text{ cm}^{-1}$ because of the presence of various hydrogen bonds according to structure, solvent, concentration, and admixtures (Ref 14). The classical method by Meyer (Ref 43) which was supplemented by Dieckmann (Ref 44) and accelerated by Schwarzenbach (Ref 18) is still valid for the determination of the enol

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content. The enol content can also be determined by using several spectral properties of the keto-enols. The investigation by infrared-spectroscopy seems to be very promising. Usually, the dissociation constants of keto-enols are determined in the same way as those of other acids, i. e. electrometrically. In the case of keto-enols there are still other possibilities, i. e. the application of ultra-violet absorption spectra. Numerous investigations showed that Meyer's law is not valid for a large group of β -diketones. In these cases the method of infrared and, in part, ultra-violet-spectroscopy can be successfully used. However, the tautomerism of trans-fixed β -dicarbonyl compounds is still very unclear and requires further investigation. The behavior of some alkylidene acetylacetones which was discovered by means of spectroscopy is also interesting. Table 1 - characteristic frequencies of non-conjugated dicarbonyl form; Table 2 - characteristic frequencies of conjugated dicarbonyl form; Table 3 - ultra-violet absorption of undissociated enol form which may exist in cis-form; Table 4 - ultra-violet

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Spectroscopic Investigation Methods of the Tautomerism SOV/74-28-4-4/6
of β -Dicarbonyl Compounds

absorption of trans-fixed β -dicarbonyl compounds and their derivatives; Table 5 - ultra-violet absorption of the enolate anion and enolate cation; Table 6 - characteristic frequencies of the enol form in the range of double bonds; Table 7 - characteristic frequencies of the hydroxyl group of β -dicarbonyl compounds; Table 8 - characteristic frequencies of intramolecular metallic derivatives of β -dicarbonyl compounds. There are 8 tables and 88 references, 24 of which are Soviet.

Card 6/6

QUDRINIECE, E.; VANAG, G. [Vanags, G.]; TIRE, E.

Research in the field of cyclic arylazo- β -diketones. VIII. Condensation of 5-phenylcyclohexanedione-1,3 (phenidone) and 4-carbethoxy-5-phenylcyclohexanedione-1,3(4-carboethoxyphenidone) with diazotized aromatic amines. Vestis Latv ak no.2:87-94 '60. (EEAI 10:1)

(Phenylcyclohexanedione)

(Phenidone) (Ethoxycarbonyl group)

(Aromatic compounds) (Cyclic compounds)

(Aryl groups) (Amines) (Ketones)

VANAG, G. [Vanags, G.] (Riga); STUNDA, I. (Riga)

2-nitro-4, 5-dimethoxyindandione-1,3. In Russian. Vestis Latv
ak no.3:77-84 '60. (EEAI 10:7)

1. Akademiya nauk Latvyskoy SSR, Institut organicheskogo sinteza.
(Nitro group) (Dimethoxyindandione)

GEYTA, L. [Geita, L.] (Riga); VANAG, G. [Vanaga, G.] (Riga)

Condensation of indandione-1,3 with furfurole and 5-nitrofurfurole.
In Russian. Vestis Latv ak no.3:93-102 '60. (EEAI 10:7)

1. Akademiya nauk Latvyskoy SSR, Institut organicheskogo sinteza.
(Indandione) (Furaldehyde) (Nitrofuraldehyde)

GUDRINIETSE, E. [Gudriniece, E.] (Riga); IYEVIN'SH, A. [Ievins, A.] (Riga);
VANAG, G. [Vanags, G.] (Riga); BRUNERE, V. (Riga); BANKOVSKIY, Yu.
[Bankovskis, J.] (Riga)

Sulfonation of β -diketones. IX. Indandione-1,3-disulfo-2,2-acid
and its salts. In Russian. Vestis Latv ak no. 3:103-106 '60.
(EEAI 10:7)

1. Akademiya nauk Latvyskoy SSR, Institut khimii.
(Ketones) (Sulfonation) (Indandisulfonic acid)

AREN, A. [Arens, A.] (Riga); OZOL, Ya. [Ozols, J.] (Riga); Vanag, G. [Vanags, G.] (Riga)

Interaction of 2-halogen-2-p-nitrophenylindandione-1,3 with
aromatic amines. In Russian. Vestis Latv ak no.4:117-122 '60.
(EAI 10:7)

1. Akademiya nauk Latvyskoy SSR, Institut khimii.
(Halogens) (Nitrophenylindandione) (Amines)
(Aromatic compounds)

VANAG, G. [Vanags, G.] (Riga); ZHAGAT, R. [Zagats, R.] (Riga)

Nitrobrombindon and some of its color reactions. In Russian.
Vestis Latv ak no.5:77-80 '60. (REAI 10:7)

1. Akademiya nauk Latvyskoy SSR, Institut khimii.
(Nitrobindone) (Bromo group)

NIKOLAYEVA, N. (Riga); VANAG, G. [Vanags, G.] (Riga)

New effective rodenticide, diphenylacetylindandione (diphenatsin).
In Russian. Vestis Latv ak no.5:81-84 '60. (EEAI 10:7)

1. Akademiya nauk Latvyskoy SSR, Institut organicheskogo sinteza.
(Diphenylacetylindandione) (Rodenticides)

AREN, A. [Arens, A.] (Riga); OZOL, Ya. [Ozols, J.] (Riga); VANAG, G. [Vanags, G.]
(Riga)

Reaction of 2-halogen-2-p-nitrophenylindandione-1,3 with aliphatic
and heterocyclic amines. Vestis Latv ak no.6:61-66 '60.
(EEAI 10:9)

1. Akademiya nauk Latviyskoy SSR, Institut organicheskogo sinteza.

(Halogens) (Aliphatic compounds)
(Heterocyclic compounds) (Nitrophenylindandione)
(Amines)

VANAG, G.[Vanags, G.](Riga); ZHAGAT, R.[Zagats, R.](Riga)

Reaction of bindone and some of its derivatives with sodium hydro-sulfate. Vestis Latv ak no.6:67-72 '60.

(EEAI 10:9)

1. Akademiya nauk Latvyskoy SSR, Institut organicheskogo sinteza.

(Sodium dithionite) (Bindone)

· VANAG, G.[Vanags, G.](Riga); DUMPIS, T.(Riga); ZUTERE, L.(Riga)

2-aminobenzylindandione-1,3. Vestis Latv ak no.6:73-80 '60.
(KEAI 10:9)

1. Akademiya nauk Latvyskoy SSR, Institut organicheskogo sinteza.

(Benzylindandione) (Amino group)

VANAG, G. [Vanags, G.]

Some results of studying β -diketones in the Academy of Sciences
of the Latvian SSR. In Russian. Vestis Latv ak no. 7:183-192
'60. (KEAI 10:7)

(Ketones) (Academy of Sciences of the Latvian SSR)

GUDRINIYETSE, E. [Gudriniece, E.] (Riga); IYEVIN'SH, A. [Ievins, A.] (Riga);
VANAG, G. [Vanags, G.] (Riga); STIPNIYETSE, Kh. [Stipniece, H.] (Riga);
MATEUS, E. [Mateuss, E.] (Riga)

Sulfonation of β -diketones. XIII. Salts of 5-phenylcyclohexanedione-
1, 3-sulfo-2-acid (phenidonsulfo-2-acid. Vestis Latv ak no. 8:95-98
'60. (EEAI 10:9)

1. Akademiya nauk Latvyskoy SSR, Institut khimiyi.

(Ketones)	(Sulfonation)	(Phenylcyclohexanedione)
	(Phenidone)	(Sulfonic acids)

VANAG, G.[Vanags, G.] (Riga); ZELMEN, V.[Zelmene, V.](Riga)

Some 4-nitro-2-phenyl-indandione-1,3 derivatives. Vestis Latv ak
no.9:103-108 '60. (EEAI 10:9)

1. Akademiya nauk Latvyskoy SSR, Institut organicheskogo sinteza.

(Nitro phenylindandione)

AUTHORS:

Gudriniyetse, E., Vanag, G.,
Kurzemniyeks, A., Grants, Z.

S/153/60/003/01/031/058
B011/B005

TITLE:

Interaction Between Sulfuryl Chloride and Beta Diketones

PERIODICAL:

Izvestiya vysshikh uchebnykh zavedeniy. Khimiya i khimicheskaya
tekhnologiya, 1960, Vol 3, Nr 1, pp 119-121 (USSR)

TEXT: The authors proved that sulfuryl chloride is a good chlorination reagent for cyclic β -diketones. Ether, dioxane, CCl_4 , 1,2-dichloroethane, chloroform, and benzene were used as solvents. The highest yields in dichloro- β -diketones were obtained in dioxane at a ratio of β -diketone : sulfuryl chloride = 1 : 2.5. The reaction was carried out at different temperatures between 0 and 80°. At higher temperatures, the reaction proceeds faster, but only 2,2-dichlorodiketones-1,3 (I) are formed. Without a solvent, the reaction proceeds very vigorously, and the product becomes resinous. Application of ultraviolet light (quartz lamp) and anhydrous aluminum chloride did not lead to the formation of sulfochlorides. The compounds produced are: 2,2-dichloroindandione-1,3, 2,2-dichlorodimedone, 2,2-dichloro-5-phenylcyclohexanedione-1,3, and 2,2-dichloroperinaphthindandione. The table (p 120) shows the reaction temperatures, solvents, yields, and the calculated and measured melting points of the products obtained. There are 1 table

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Interaction Between Sulfuryl Chloride and Beta
Diketones

S/153/60/003/01/031/058
B011/B005

and 13 references, 3 of which are Soviet.

ASSOCIATION: Rizhskiy politekhnicheskiy institut; Kafedra organicheskoy khimii
(Riga Polytechnic Institute; Chair of Organic Chemistry)

SUBMITTED: February 23, 1959

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5.3600

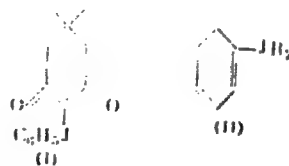
77881
SOV/77-30-2-32/78

AUTHORS: Neyland, O. Ya., Vanag, G. Ya.

TITLE: Iodonium Derivatives of β -Diketones. III. Acylation and Alkylation of Phenylidimedonyliodone

PERIODICAL: Zhurnal obshchey khimii, 1960, Vol 30, Nr 2, pp 510-518 (USSR)

ABSTRACT: Previously it was shown (ZhOKh, 27, 2737, 1957) that 5,5-dimethylcyclohexane-1,3-dione (dimedone) reacts with iodobenzene forming compound I. The same compound is formed by the reaction of dimedone with II, $R=CH_3COO$ or $R=C_6H_5COO$.



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In the above reaction, acetic or benzoic acid is

Iodonium Derivatives of β -Diketones.
 III. Acylation and Alkylation of
 Phenylidenedonyliodonone

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eliminated and compound I is obtained in a pure state.
 The reaction scheme is given below:



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The Obtained Products and Their Properties

Nr	Starting materials	Obtained products	Yield in %	mp in ° C
1	dimedone + phenyllo- doxo acetate + CHCl_3	I	88	136 (dec)
2	dimedone + phenyllo- doxo benzoate	I	82	125* (dec)
3	I + acetyl chloride	chlorodimedone	50	161
4	I + benzoyl chloride	VI, $\text{R}=\text{C}_6\text{H}_5$, $\text{X}=\text{Cl}$	90	121-122 (dec)
5	I + CHCl_3 + triethyl- oxonium borofluoride	VI, $\text{R}=\text{C}_2\text{H}_5$, $\text{X}=\text{BF}_4$	65.5	159 (dec)

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* The melting point depression can be explained by a small admixture of benzoic acid.

(Table cont'd)

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The Obtained Products and Their Properties

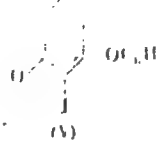
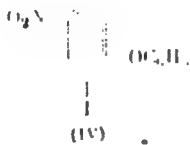
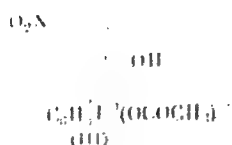
Nr	Starting materials	Obtained products	Yield in %	mp in ° C
6	I + diethyl sulfate + ammonium borofluoride	phenyl-(O-ethyl-dimedonyl)-iodonium borofluoride	7.5	154-156 (dec)
7	I + dimethyl sulfate + ammonium borofluoride	phenyl-(O-methyl-dimedonyl)-iodonium borofluoride	41	153-155 (dec)
8	I + methanol + dimethyl sulfate	VIII, A=CH ₃ SO ₄ H	70.5	110-114 (dec)
9	diphenyldiodonium bromide + AgOH + CH ₃ COOH	diphenyliodonium acetate	44	149-151

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The Obtained Products and Their Properties

Nr	Starting materials	Obtained products	Yield in %	mp in °C
10	O-ethyldimedone + + CH ₃ COOK + CH ₃ COOH + + complex of I ₂ with dioxane	O-ethyl-2-iodo- dimedone	6.5	130-131

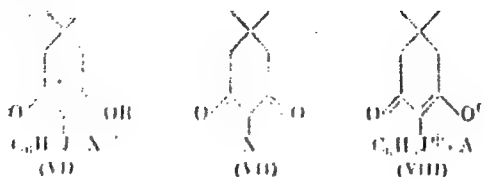


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Iodonium Derivatives of -Diketones.
 III. Acylation and Alkylation of
 Phenylidimedonyliodone

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There are 2 tables; and 11 references, 4 Soviet, 3 German, 1 Swiss, 2 U.K., 1 U.S. The 3 U.K. and U.S. references are: A. R. Fox, K. H. Pausacker, J. Chem. Soc., 295 (1957); K. H. Pausacker, ibid, 107 (1953); H. Meerwein, E. Rattenberg, H. Gold, E. Pfeil, G. Willfang, J. Pr. Chem., 154, 83 (1940).

ASSOCIATION:

Riga Polytechnical Institute (Rizhskiy politekhnicheskiy institut)

SUBMITTED:

February 5, 1959

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S/079/60/030/05/29/074
B005/B016

AUTHORS: Iyevin'sh, A. F., Apinitis, S. K., Gudriniyetse, E. Yu.,
Vanag, G. Ya.

TITLE: Sulfonation of β -Diketones. VII. Crystallographic and X-Ray
Analyses of Alkali Metal and Ammonium Salts of Indandione(1,3)-
-2-sulfonic Acid

PERIODICAL: Zhurnal obshchey khimii, 1960, Vol. 30, No. 5, pp. 1541-1547

TEXT: The authors of the present paper investigated the crystals of the lithium-, sodium-, potassium-, ammonium- and rubidium salts of indandione(1,3)-2-sulfonic acid. To obtain suitable crystals for the crystallographic investigation, these salts were recrystallized from aqueous ethanol. The experimental conditions are given. The mono- and dihydrate of the sodium salt of indandione(1,3)-2-sulfonic acid were studied while the remaining 4 alkali salts occurred in anhydrous state. Crystal class, axial ratio, volume of the unit cell, and number of molecules in the unit cell were determined for each of these 6 salts. 4 tables give the spherical coordinates of the individual lattice planes

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Sulfonation of β -Diketones. VII. Crystallographic and X-Ray Analyses of Alkali Metal and Ammonium Salts of Indandione(1,3)-2-sulfonic Acid S/079/60/030/05/29/074 B005/B016

for the 6 salts investigated. One table shows the parameters of the unit cells of potassium-, ammonium-, and rubidium salt, 2 further tables present the identity periods for the 3 lattice planes [110], [101], and [011] for the dihydrate of the sodium salt, and for the potassium salt of indandione(1,3)-2-sulfonic acid. 4 schemes show the crystals investigated in the oblique and top view. The authors further investigated the solubilities of the alkali salts of indandione(1,3)-2-sulfonic acid in water and alcohol at 20°. The results are compiled in a table. The solubility of the salt decreases with increasing radius of the cation. There are 4 figures, 8 tables, and 2 Soviet references.

ASSOCIATION: Rizhskiy politekhnicheskii institut (Riga Polytechnic Institute)

SUBMITTED: May 11, 1959

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S/079/60/030/05/46/074
B005/B016

AUTHORS: Vanag, G. Ya., Stankevich, E. I., Gren, E. Ya.

TITLE: Polynuclear Heterocyclic Compounds, II. Structure and Color
of Some Derivatives of 4-Phenyl-dibenzoylene Pyridine ¹

PERIODICAL: Zhurnal obshchey khimii, 1960, Vol. 30, No. 5, pp. 1620-1627

TEXT: The authors of the present paper investigated the fine structure of 4-(p-dimethyl-amino-phenyl)-2,3(CO).6,5(CO)-dibenzoylene pyridine (II) and 4-(p-dimethyl-amino-m-nitro-phenyl)-2,3(CO).6,5(CO)-dibenzoylene pyridine (III), as well as of arylidene indandiones which are the simplest representatives of this series. The absorption spectra of solutions of these compounds were taken in the ultraviolet and visible spectrum region and analyzed. Fig. 1 shows the ultraviolet absorption spectra of two phenyl-dibenzoylene pyridines in two different solvents (dioxane, $C_2H_5OH + C_2H_5ONa$). Figs. 2 and 3 give the absorption spectra of solutions of compound (II) in dioxane and in concentrated hydrochloric acid in the ultraviolet and visible spectrum region. For comparison, in each of these three

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Polynuclear Heterocyclic Compounds. II. Structure and Color of Some Derivatives of 4-Phenyl-dibenzoylene Pyridine S/079/60/030/05/46/074
B005/B016

Figs. the absorption spectrum of a solution of 4-phenyl-2,3(CO).6,5(CO)-dibenzoylene pyridine (I) in dioxane is shown. Compound (I) had been investigated in a previous paper (Ref. 2). Fig. 4 shows the absorption spectra of compounds (I) and (II) (in dioxane) and of 4-(o-hydroxy-phenyl)-2,3(CO).6,5(CO)-dibenzoylene pyridine (X) (in $C_2H_5OH + C_2H_5ONa$) in the wave-length range of 200-600 m μ . The spectra are interpreted. These results suggested the fine structure of the compounds investigated. The corresponding structural formulas are given with consideration of the fine structure. Evidence was offered on the relationship between color and chemical properties on one hand, and the structure of the compound on the other. In an experimental part, the syntheses of the compounds investigated are described. There are 4 figures and 15 references, 6 of which are Soviet.

ASSOCIATION: Institut organicheskogo sinteza Akademii nauk Latvyskoy SSR
(Institute of Organic Synthesis of the Academy of Sciences,
Latviyskaya SSR)

SUBMITTED: May 25, 1959

Card 2/2

YANAG, G.Ya.; DUBUR, G.Ya.

Polynuclear heterocyclic compounds. Part 3: Acenaphthenone-1-spiro-(2:4')-2',3' (CO),6'5'(CO)-dibenzoylenedihydropyridine.
Zhur.ob.khim. 30 no.6:1898-1904 Je '60.
(MIRA 13:6)

1. Akademiya nauk Latvyskoy SSR.
(Pyridine)

GUDRINIETSE, E.; VANAG, G.; ^{ya}MAZKAL'KE, L.

Sulfonation of β -diketones. Part 10: Sulfonation of dimedon.
Zhur.ob.khim. 30 no.6:1904-1911 Je '60. (MIRA 13:6)

1. Rizhskiy politekhnicheskii institut.
(Cyclohexanedione) (Sulfonation)

GUZRINIYETSE, E.; VANAG, G.; MAZKAL'KE, L.

Sulfonation of β -diketones. Part 11: Derivatives of 2-dimedon-sulfonic acid. Zhur.ob.khim. 30 no.7:2379-2387 J1 '60.
(MIRA 13:7)

1. Rishskiy politekhnicheskiy institut.
(Cyclohexanesulfonic acid--Spectra)
(Cyclohexanedione--Spectra)

VANAG, G. [Vanags, G.], akademik, prof., red.; DYMARSKAYA, O., red.; LEMBERGA, A.,
tekhn. red.

[Cyclic β -diketones] TSiklicheskie β -diketony. Riga, Izd-vo Akad.
nauk Latvviiskoi SSR, 1961. 372 p. (MIRA 14:11)

1. AN Latviyskoy SSR (for Vanag).
(Ketones)

GUDRINIETSE, E.[Gudriniece, E.] (Riga); IEVIN'SH, A.[Ievins, A.](Riga);
VANAG, G.[Vanags, G.](Riga); KREYTSBERG, D.[Kreicberga, D.](Riga)

Sulfonation of β -diketones. XV. Bindonesulfonic acid and its
salts. Vestis Latv ak no.2:111-114 '61. (KEAI 10:9)

1. Akademiya nauk Latvyskoy SSR, Institut khimii.

(Sulfonation) (Ketones) (Bindonesulfonic acid)

STRADYN', Ya.[Stradins, J.](Riga); VANAG, G.[Vanags, G.](Riga); TILTYN', M.
[Tiltins, M.](Riga)

Product of electrolytic reduction of 2-nitroindandione-1,3 and 2-
oximinoindandione-1,3. Vestis Latv ak no.2:115-122 '61.
(EEAI 10:9)

1. Akademiya nauk Latvyskoy SSR, Institut organicheskogo sinteza.
(Nitroindandione) (Oximes) (Indandione)

OSHKAYA, V. [Oskaja, V.]; VANAG, G. [Vanags, G.]

Condensation of phthalic anhydride and phenylacetic acid in triethylamine and acetic anhydride solution. Vestis Latv ak no.3:67-76 '61.

1. Institut organicheskiego sinteza AN Latvyskoy SSR.

GREN, E.[Grens, E.]; VANAG, G.[Vanags, G.]

4-cyclopentene-1,3-dione and some of its derivatives. Vestis Latv ak
no.5:65-70 '61.

1. Akademiya nauk Latviyskoy SSR, Institut organicheskogo sinteza.

GEYTA, L.[Geita, L.]; VANAG, G.[Vanags, G.]

Reaction of opianic acid with 1,3-indandione. Vestis Latv ak no.5:
79-86 '61.

1. Akademiya nauk Latvyskoy SSR, Institut organicheskogo sinteza.

OSHKAYA, V.[Oskaja, V.]; VANAG, G.[Vanags, G.]

Condensation of nitrophthalic anhydrides with phenyl acetic acid in triethylamine and acetic anhydride solution. Vestis Latv ak no.6: 57-64 '61.

1. Akademiya nauk Latvyskoy SSR, Institut organicheskogo sinteza.

(Acetic acid) (Phthalic anhydride)

ZHAGAT, R.[Zagats, R.]; VANAG, G.[Vanags, G.]

Reaction of bindone with carbonyl group reagents. Vestis Latv ak no.6:
65-70 '61.

1. Akademiya nauk Latvyskoy SSR, Institut organicheskogo sinteza.

(Bindone) (Carbonyl group)

ZHAGAT, R.[Zagats, R.]; ZELMEN, V.[Zelmene, V.]; VANAG, G.[Vanags, G.]

Improved method for obtaining bindone. Vestis Latv ak no.6:71-76
'61.

1. Akademiya nauk Latvyskoy SSR, Institut organicheskogo sinteza.

(Bindone)

OSHKAYA, V.[Oskaja, V.]; ^{V/A}VANAG, G.[Vanags, G.]

Condensation of phthalic anhydride with benzyl cyanide and methyl-
benzyl ketone in a solution of triethylamine and acetic anhydride.
Vestis Latv ak no.8:45-52 '61.

1. Akademiya nauk Latvyskoy SSR, Institut organicheskogo sinteza.

VANAG, G.Ya.; STANKEVICH, E.I.

Polynuclear heterocyclic compounds. Part 4: Reaction of bis
(dimedonyl)methanes with ammonium acetate. Zhur.ob.khim. 30
nq,10:3287-3292 0 '61. (MIRA 14:4)

1. Institut organicheskogo sinteza Akademii nauk Latvyskoy SSR.
(Ammonium acetate) (Methane) (Acridinedione)

FREYMANIS, Ya.F. [Freimanis, J.]; VANAG, G.Ya.

Imines of di- and polyketones. Part 4: Ultraviolet absorption spectra structure of imines of 2-substituted 1,3-indandiones. Zhur. ob.khim. 30 no.10:3362-3369 0 1961. (MIRA 14:4)

1. Institut organicheskogo sinteza Akademii nauk Latvyskoy SSR.
(Indandione) (Imines--Spectra)

FREYMANIS, Ya.F. [Freimanis, J.]; VANAG, G.Ya.

Imines of di- and polyketones. Part 5: Infrared absorption spectra and structure of imines of 2-substituted indandiones and some of their derivatives. Zhur.ob.khim. 30 no.10:3369-3380 0 '61.
(MIRA 14:4)

1. Institut organicheskogo sinteza Akademii nauk Latvyskoy SSR.
(Indandione) (Imines--Spectra)

STRAKOV, A.Ya.; GUDRINIYETSE, E.Yu.; IYEVIN'SH, A.F.; VAKAG, G.Ya.

Sulfonation of β -diketones. Part 12: Sulfonation of 2-phenyl-1,3-indandione. Zhur. ob. khim. 30 no.12:3967-3972 D '60.

(MIRA 13:12)

1. Rishskiy politekhnicheskii institut.
(Indandione) (Sulfonation)

AREN, A.K.; VANAG, G.Ya.

Synthesis of 2-benzhydryl-1,3-indandione and its 2-amino derivatives.
Zhur. ob. khim. 31 no.1:117-123 Ja '61, (MIRA 14:1)

1. Rizhskiy politekhnicheskii institut.
(Indandione)

NEYLAND, O.Ya.; VANAG, G.Ya.

Iodénium derivatives of β -diketones. Part 4: Reaction of 5-phenyl-1,3-cyclohexanedione with pheynliodose acetate. Zhur. ob. khim. 31 no.1:146-156 Ja '61. (MIRA 14:1)

1. Rizhskiy politekhnicheskii institut.
(Cyclohexanedione) (Benzene)

STRAKOV, A. Ya.; VANAG, G. Ya.; GUDRINETSE, E. Yu.

Sulfonation of β -diketones. Part 14: Derivatives of 2-(p -sul-
fophenyl)-1,3-indandione. Zhur. ob. khim. 31 no.3:906-911
Mr '61. (MIRA 14:8)

1. Rizhskiy politekhnicheskiy institut.
(Indandione) (Sulfonation)

DUMPIS, T.T.; VANAG, G. Ya.

Nitration of 2-benzyl-1,3-indandiones. Zhur. ob. khim. 31
no.3:911-915 Mr '61. (MIRA 14:3)

1. Institut organicheskogo sinteza AN Latvyskoy SSR.
(Indandione) (Nitration)

FREYMANIS, Ya.F. [Freimanis, J.]; VANAG, G.Ya.

Imines of di- and polyketones. Part 6: 2-Methyl-1, 3-indandione
imine. Zhur.ob.khim. 31 no.6:1945-1953 Je '61. (MIRA 14:6)

1. Institut organicheskogo sinteza AN Latvyskoy SSR.
(Indandione)

FREYMANIS, Ya.F. [Freimanis, J.]; VANAG, G.Ya.

Imines of di- and polyketones. Part 7: Nitration of 2-methyl-1,
3-indandione and of its imine. Zhur.ob.khim. 31 no.6:1954-1962
Je '61. (MIRA 14:6)

1. Institut organicheskogo sinteza AN Latvyskoy SSR.
(Indandione) (Nitration)

VANAG, G.Ya. [Vanags, G.]; OZOL, Ya.Ya. [Ozols, J.]

Reaction of 2-halo-2-methyl-1,3-indandione with aromatic and heterocyclic amines. Zhur.ob.khim. 32 no.5:1436-1441 My '62. (MIRA 15:5)

1. Institut organicheskogo sinteza AN Latvyskoy SSR.
(Indandione) (Amines)

DREGERIS, Ya.Ya. [Dregeris, J.]; VANAG, G.Ya. [Vanags, G.]

2- β -Aminoethyl-2-phenyl-1,3-indandiones. Zhur.ob.khim. 32
no.9:2863-2867 S '62. (MIRA 15:9)

1. Institut organicheskogo sinteza AN Latvyskoy SSR.
(Indandione)

ZHAGAT, R.A.; VANAG, G.Ya. [Vanags, G.]

Nitro- and chloronitrobindones. Zhur.ob.khim. 32
no.11:3627-3630 N '62. (MIRA 15:1)

1. Institut organicheskogo sinteza AN Latvyskoy SSR.
(Bindone)

AUTHORS:

Neyland, O. Ya., Vanag, G. Ya.,
Academician of the AS Latvinskaya
SSR

S/020/60/131/04/036/073
B011/B017

TITLE:

Iodonium Derivatives of 5-Phenylcyclohexanedione-1,3 and Their
Transformations

PERIODICAL:

Doklady Akademii nauk SSSR, 1960, Vol 131, Nr 4, pp 847-849 (USSR)

TEXT: In an earlier paper (Ref 1) the authors produced a new compound from 5-phenylcyclohexanedione-1,3: enolatebetainepheryl-(5-phenylcyclohexanedione-1,3-yl-2)-iodonium (I), which in the following is referred to as phenyl iodonium. The authors dealt with the study of its properties, the structural characteristics, and its alkylation and cleavage products. It is a white substance soluble in chloroform and benzene under intensive yellow coloring. Phenyl iodonium is not highly resistant, and is cleft by various reagents, especially by sun rays. Cleavage may proceed in two directions with the rupture of the iodine-carbon bonds. Thus, phenyl iodonium decomposes smoothly, in the presence of HCl, into iodobenzene and 2-chloro-5-phenylcyclohexanedione-1,3 (II). In pyridine solution and under the action of temperature, the following cleavage products are formed: iodobenzene and phenyl ether of 2-iodo-5-phenylcyclohexanedione-1,3 (III). In the presence of silver nitrate and pyridine, cleavage takes place only in the iodine-phenyl bond; in this connection, the silver salt of 2-iodo-5-phenylcyclohexanedione-1,3 (IV) is formed. By strong acylating and alkylating agents (benzoyl

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and Their Transformations

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chloride, triethyl-oxonium-boron fluoride), phenyl iodonium is not cleft but forms acyl- and alkyl derivatives. As a consequence, the rupture of the iodine-carbon bond is oriented as is the case in analogous dimerone derivatives (Ref. 2). Under given conditions, phenyl iodonium exists without any doubt in the form of the enolate anion. It follows therefrom that the electron density on the carbon atom of the active methylene group is increased as compared with the non-ionized form. The enolate anion system is characterized by a high mobility of the electron charge. The absorption spectra of phenyl iodonium (I) and of pyridinium-enolate-betaine (VII) show strong displacements of the characteristic maxima of the enolate-anion system of the enolate betaines as compared with a normal system. This may only be explained by a change in the electron structure and a doubling of the bonds. It may be assumed that the electron density on the carbon atom of the active methylene group increases under the influence of a positively charged substituent. Hence, also the character of the carbon-carbon and carbon-oxygen bonds in the system is changed (see Scheme). Up to now, no satisfactory method has existed to determine the correct structure of the enolate anions. The balance of the charge in both oxygen atoms may be expressed, as is usually done, by dotted lines for non-integral bonds (e.g. IV). In symmetric systems, the equivalence of the two carbonyl groups must be observed. The authors, however, proved by their examples that the electron

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density in the oxygen- and the carbon atom may vary. In this case, charge portions localized in individual atoms can be difficultly estimated. For this reason, difficulties arise in the preparation of enolate betaines. The hitherto used method (VIII) is not sufficiently precise. Method (IX) (see Scheme) would be the most correct one. The difficulty of estimating the charge portions δ and δ' , as well as the fact that $2\delta + \delta' = 1$ must also be taken into account. There are 5 Soviet references.

ASSOCIATION: Rizhskiy politekhnicheskiy institut
(Riga Polytechnic Institute)

SUBMITTED: October 15, 1959

Card 3/3

5.3610
AUTHORS:

Heyland, O., Stradyn', Ya., Vanag, G.,
Academician AS LatvSSR

69999
S/020/60/131/05/028/069
B011/B117

TITLE: On the Structure of Some Cyclic 2-Nitro-diketones^{1,3}

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol 131, Nr 5, pp 1084-1087 (USSR)

TEXT: In continuation of their work on the tautomerism of the cyclic 2-nitro-diketones (Refs 1, 2), the authors studied 2-nitro-dimedone (I. $R_1 = R_2 = CH_3$, see scheme), 2-nitro-5-phenyl cyclohexanedione-1,3 (2-nitrophenedione; I. $R_1 = H$, $R_2 = C_6H_5$), their anions, and some related compounds. The structures of the compounds mentioned as well as the difference between the three nitration products of phenedione (melting point $120-121^\circ$, $131-132^\circ$, and $119-120^\circ$, respectively) could be clarified. The infra-red spectra of the solid substances were taken in suspension in paraffin oil and in chloroform solutions. The ultra-violet spectra of 10^{-4} M solutions in H_2O , CH_3OH , or $CHCl_3$ were taken. Polarograms of 10^{-4} M aqueous solutions of the corresponding substances in buffer solutions were taken by Britton-Robinson on a background consisting of 0.1 N KCl. Table 1 shows the compilation of the results. From these, it follows that the 2-nitro-dimedone and the 2-nitrophenedione in chloroform show an analogous

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On the Structure of Some Cyclic 2-Nitro-diketones-1,3

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structure, i.e. that of a nitro-enol in which a stable intramolecular hydrogen bond has been established for the hydroxyl group. The analogous structure of the molecules of 2-nitro-dimedone and 2-nitrophenedione in chloroform is proved by the similarity of their ultraviolet spectra. The infrared spectrum of solid 2-nitro-dimedone differs considerably from its spectrum in chloroform. Hence, it follows that 2-nitro-dimedone in the solid state exists also in the form of a nitro-enol. In this case, however, not the intramolecular, but the intermolecular interaction of the groups prevails. On the other hand, the infrared spectra of solid 2-nitrophenedione give evidence of the facts that: 1) both modifications with melting points of 131-132° and 120-121° have an analogous structure, and 2) that the structure resembles in this case the state found in a CHCl₃ solution. This means that this structure forms a nitro-enol with an intramolecular hydrogen bond, though an intermolecular interaction can take place in this case also. The third modification of the 2-nitrophenedione (melting point 119-120°) has a quite different structure. The authors came to the conclusion that this modification corresponds to the 6-nitro-3-phenyl hexanoic-5-acid (IV). This acid forms when 2-nitrophenedione is boiled in aqueous solutions whereby its ring is easily split. From the infra-red spectra of the solid ammonium salts of the 2-nitro-dimedone and the 2-nitrophenedione, the authors

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On the Structure of Some Cyclic 2-Nitro-diketones-1,3

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conclude that a mesomeric anion (II) with the charge distributed between two carbonyl groups and the nitro group must exist. It seems that the electron density is unevenly distributed in the mesomeric 2-nitro-enolate anions. 2-Nitro-dimedone and 2-nitrophenedione on the one and 2-nitro-indandione-1,3 on the other hand have an entirely different structure. The two first-mentioned ones are in the solid state nitro-enols, while the latter exists as a nitro-diketone or as an ionized nitro-acid. This and other structural differences can be explained, if it is borne in mind that the 2-nitro-dimedone and the 2-nitrophenedione have a stable six-membered ring, while there is a higher-stressed five-membered ring in the 2-nitro-indandione-1,3. In the latter, endocyclic double bonds are less advantageous than the exocyclic ones (Ref 2). Therefore, the tendency of the 2-nitro-indandione-1,3 is to form a type of a keto-nitro-acid, while, in the case of the six-membered nitro- β -diketones, the formation of a nitro-enol is possible. A. Grinvalde and M. Tiltin' are mentioned. There are 1 table and 14 references, 8 of which are Soviet.

ASSOCIATION: Institut organicheskogo sinteza Akademii nauk LatvSSR (Institute of Organic Synthesis of the Academy of Sciences, Latvinskaya SSR).
Rizhskiy politekhnicheskii institut (Riga Polytechnic Institute)

SUBMITTED: November 23, 1959
Card 3/3

5.3600

80090
S/020/60/131/06/34/071
B011/B005

AUTHORS: Neyland, O. Ya., Vanag, G. Ya., Academician, AS LatvSSR

TITLE: The Mechanism of Interaction of Phenyl-iodoso Compounds With
Some β -Diketones 1

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol. 131, No. 6, pp. 1351 - 1354

TEXT: The authors state that the reactions of phenyl-iodoso acetate can be divided into 2 subtypes: 1) On reaction with alcohols, α -glycols, and amines, its oxidizing properties become apparent. Ketones, azo- and other compounds are formed. 2) In the presence of strong acids, reactions occur with aromatic hydrocarbons, and iodonium salts are formed. In reality, both types of reaction are based on a common scheme: a) the mobile proton is separated, and the corresponding derivative of bivalent iodine is formed; b) the intermediate product decomposes, or is stabilized. This depends on the character of the new bond of iodine (with C, N, O) and the present anion. The reactions mentioned in the title and investigated by the authors are in full agreement with this mechanism. It is known (Ref. 10) that dimedone with iodosobenzene and phenyl-iodoso fluoride forms an internal iodonium salt of the enolate-betaine type (III, $R_1 = R_2 = CH_3$). When

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the authors transferred this reaction to other β -diketones and β -keto esters, it appeared that no iodonium compounds can be isolated. This applies to acetyl acetone, dibenzoyl methane, indanedione-1,3, 2-phenylindanedione-1,3, acetoacetic ester, and malonic-acid ester. Iodobenzene¹ was formed in all cases. IV and V (2-acetoxy derivatives) were formed as 2nd products in the case of dibenzoyl methane and phenylindanedione. The reaction of phenyl-iodoso acetate in the presence of pyridine yielded enolate betaines of pyridinium- β -dicarbonyl compounds (VI) in the case of acetoacetic ester, acetyl acetone, and dibenzoyl methane. The reaction of phenyl-iodoso acetate with β -dicarbonyl compounds gives a new proof of the double reactivity of the latter. This again shows the great difference between the properties of β -diketones of the cyclohexanedione-1,3 series and other groups investigated. The pyridinium-enolate betaines (VI) are yellow crystalline substances. Their melting point cannot be accurately determined. Some of them lower their melting point by absorbing air moisture (Table 1). The structure of these substances was investigated by ultraviolet and infrared absorption spectra. Some of them have a cis-form, others a trans-form. The infrared spectra of the enolate betaines investigated in the range of double bonds show a complicated picture which can be hardly interpreted at first. It can be said, however, that the localization of the charge in the enolate-

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anion systems greatly depends on structural factors. There are 1 table and
18 references, 4 of which are Soviet. ✓

ASSOCIATION: Rzhskiy politekhnicheskiy institut (Riga Polytechnic Institute)

SUBMITTED: November 30, 1959

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80056

S/020/60/132/01/30/064
B011/B1265.3100
5.3610

AUTHORS: Aren, A. K., Neyland, O. Ya., Vanag, G. Ya., Academician of the
AS LatvSSR

TITLE: The Structure of 2-Para-Nitrophenylindandione-1,3

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol. 132, No. 1, pp. 115-118

TEXT: The authors have shown that 2-para-nitrophenylindandione-1,3 (NPI) is a very mobile system, which exists in polar solvents and apparently also in the solid state as an anion with a balanced electron structure. This system is also capable of mutual conversions. In solvents of weak polarity NPI exists in colorless diketo form. The NPI anion possesses two kinds of reactivity: a) with diazomethane it forms a methyl ester of the enol form; b) with bromine and chlorine, 2-bromine and 2-chlorine derivatives are produced. NPI differs from the colorless 2-phenyl indandione-1,3, since it is dark red in color. The 2-chlorine and 2-bromine derivatives of NPI are colorless, while the 2-amino derivatives are yellow or orange. The authors wanted to clarify the cause of this coloring of NPI. Phenylindandiones crystallize from polar solvents as red substances. On the determination of the melting points, the red forms become colorless. There are,

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The Structure of 2-Para-Nitrophenylindandione-1,3

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however, signs that the red form of NPI is stable, and is not influenced either by the action of temperature or by the type of solvent. In order to clarify the possibility that NPI may exist in valence structures (III) and (IV), the authors analyzed NPI and some of its derivatives in the ultraviolet and infrared. Further, the methyl ester of its enol form $C_{16}H_{11}O_4N$ was analyzed. Fig. 1 shows

that the ultraviolet absorption spectra of NPI and its Na salt have identical curves. It is obvious that the electron structure of NPI in the solution is the same as that of its anion. Therefore, NPI is dissociated in a solution of absolute methanol. The ultraviolet spectrum of NPI gives an absorption curve in dichloroethane which is characteristic of the diketo form (Fig. 2). The data of the infrared spectrum of a saturated NPI solution in dichloroethane agree with those of the ultraviolet spectra. 0.0001 M NPI solutions in dichloroethane are completely colorless. After standing for a long time in chloroform or dichloroethane a suspension of red NPI gradually changes to the colorless crystalline form, which is without doubt a diketo form. During the separation from the solution the colorless form changes back to the red form. Thus, contradictory assertions are disproved (Ref. 7). NPI differs from the other derivatives of 2-phenylindandione-1,3 which are replaced in the para-position by electrophilic substituents, simply because the red form is more stable here. The ultraviolet

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spectrum of the methyl ester of the enol form of NPI in absolute methanol differs considerably from that of NPI proper. Thus, the enol ester structure of the former is confirmed. The infrared spectrum of red NPI suspended in paraffin oil, recrystallized from glacial acetic acid, disproves the theory of its existence in diketo form (I), since no absorption of the CO groups occurs. When the sample is dissolved in water and then recrystallizes, besides other oscillations, frequencies of average intensity of the CO groups occur at 1700 and 1735 cm^{-1} . The authors believe that it undergoes a partial conversion to the diketo form under the action of the solvent. The data of the infrared spectroscopic analysis do not prove that the red form of solid NPI is an enol (II). The authors also refute the previously assumed structure of diketo nitric acid (IV), on the basis of their results. The infrared spectrum in the region of double bonds is so complicated that one cannot really speak of characteristic frequencies of single groups (Ref. 8). The authors illustrate the structure (VII) that they assume, in a scheme. They thank A. Grinval'de and M. Tiltin'sh for taking the ultraviolet spectra. There are 2 figures and 10 references, 6 of which are Soviet.

ASSOCIATION: Rzhskiy politekhnicheskii institut (Riga Polytechnic Institute)SUBMITTED: January 30, 1960
Card 3/3

VANAG, G.Ya., akademik; ZHAGAT, R.A.

Color reaction for hydrazine and substances which liberate
hydrazine. Dokl.AN SSSR 133 no.2:362-363 JI '60.
(MIRA 13:7)

1. Institut organicheskogo sinteza Akademii nauk Latvyskoy SSR.
2. Akademiya nauk Latvyskoy SSR (for Vanag).
(Hydrazine)

OREN, E.Ya.; VANAG, G.Ya., akademik

4-Cycloheptene-1,3-dione. Dokl.AN SSSR 133 no.3:588-591
J1 '60. (MIRA 13:7)

1. Institut organicheskogo sinteza Akademii nauk LatvSSR.
2. Akademiya nauk LatvSSR(for Vanag).
(Cycloheptenedione)

BELEN'KIY, M.L.; GERMANE, S.K.; AREN, A.K.; VANAG, G.Ya., akademik

A new class of pharmacologically active substances with a well-pronounced effect on the central nervous system. Dokl.AN SSSR
134 no.1:217-220 S '60. (MIRA 13:8)

1. Institut organicheskogo sinteza Akademii nauk LatvSSR.
2. Akademiya nauk LatvSSR (for Vanag).
(INDANDIONE) (PHARMACOLOGY)

DUBUR, G.Ya.; VANAG, G.Ya., akademik

Intramolecular reversible cyclization of the amides of 8-(2,3⁺ (CO),
6,5⁺(CO)-dibenzoylenepyridyl-4)-1-naphthoic acid. Dokl. AN SSSR
134 no.6:1356-1359 0 '60. (MIRA 13:10)

1. Institut organicheskogo sinteza Akademii nauk LatvSSR. 2. AN
LatvSSR (for Vanag).
(Naphthoic acid) (Cyclization)

ZHAGAT, R.; STRADIN', Ya.; GRINVALDE, A.; VANAGE, G., akademik

Structure of bindone and its derivatives. Dokl. AN SSSR 135 no.1:
77-80 N'60. (MIRA 13:11)

1. AN Latviyskoy SSR (for Venag). 2. Institut organicheskogo
sinteza AN Latviyskoy SSR.
(Indandione)

AREN, A.K.; AREN, B.M., VANAG, G.Ya., akademik

New method of synthesizing 2-aryliden-1,3-indandiones. Dokl.
AN SSSR 135 no.2:320-322 N '60. (MIRA 13:11)

1. Rishskiy politekhnicheskii institut.
(Indandione)

AREN, A.K.; DREGERIS, Ya.Ya.; VANAG, G.Ya., akademik

2- β -hydroxyethyl-2-phenyl-1, 3-indandione. Dokl.AN SSSR 137
no.5:1110-1112 Ap '61. (MIRA 14:4)

1. Rzhskiy politekhnicheskoy institut. 2. AN Latviyskoy SSR
(for Vanag). (Indandione)

FREYMANIS, Ya.F. [Freimanis, J.]; VANAG, G.Ya. [Vanags, G.], akademik

Imination of 2-substituted 1,3-indandiones. Dokl. AN SSSR 139
no.1:128-130 J1 '61. (MIRA 14:7)

1. Institut organicheskogo sinteza Akademii nauk Latvyskoy SSR.
2. AN Latvyskoy SSR (for Vanag).
(Indandione)

DUBUR, G.Ya. [Duburs, G.]; VANAG, G.Ya. [Vanags, G.], akademik

o -(2,3(CO),6,6(CO)-dibenzoyleneisonicotinoylbenzoic acid. Dokl.
AN SSSR 139 no.2:369-372 J1 '61. (MIRA 14:7)

1. Institut organicheskogo sinteza AN Latvyskoy SSR. 2. AN
Latvyskoy SSR (for Vanag).
(Benzoic acid)

GEYTA, L.S.; VANAG, G.Ya., akademik

Heminal diindandionylalkanes. Dokl. AN SSSR 139 no.3: 597-600
Jl. '61. (MIRA 14:7)

1. Institut organicheskogo sinteza AN LatvSSR. 2. AN LatvSSR
(for Vanag). (Indandione) (Paraffins)

GRENN, E.Ya.; VANAG, G.Ya. [Vanags, G.], akademik

2-Phenyl-4,5,6,7-tetrahydro-1,3-indandione. Dokl. AN SSSR 139
no.4:866-869 Ag '61. (MIRA 14:7)

1. Institut organicheskogo sinteza AN Latvivskoy SSR. 2. AN
Latviyskoy SSR (for Vanag).
(Indandione)

STANKEVICH, E.I.; VANAG, G.Ya. [Vanag, G.], akademik

Asymmetric three-carbon condensations with 1,3-indandione. Dokl.
AN SSSR 140 no.3:607-609 S '61. (MIRA 14:9)

1. Institut organicheskogo sinteza AN Latviyskoy SSR. 2. AN
Latviyskoy SSR (for Vanag).
(Indandione) (Condensation products (Chemistry))

VANAG, G.Ya., akademik; PELCHER, Yu.E.

5-Hydroxy-5-indandione-1,3-yl(2-barbituric acid.) Dokl. AN SSSR
140 no.4:815-817 0 '61. (MIRA 14:9)

1. Institut organicheskogo sinteza AN Latviyskoy SSR. 2. Akademiya
nauk Latviyskoy SSR (for Vanag).
(Barbituric acid)

STRAKOV, A.Ya.; NEYLAND, O.Ya. [Neilands, O.]: GUDRINIYETSE, E.Yu.
[Gudriniece, E.]; VANAG, G.Ya. [Vanags, G.], akademik

Sulfonation of 2-veratryl- and 2-piperonyl-1,3-indandiones. Dokl.
AN SSSR 141 no.2:374-377 N '61. (MIRA 14:11)

1. Rzhskiy politekhnicheskii institut. 2. AN Latviyskoy SSR
(for Vanag).

(Indandione) (Sulfonation)

FREYMANIS, Ya.F. [Freimanis, J.]; VANAG, G.Ya. [Vanags. G.], akademik

Production of 2,2-disubstituted 1-amino-3-indanone. Dokl. AN
SSSR 141 no.3:638-640 N '61. (MIRA 14:11)

1. Institut organicheskogo sinteza AN Latviyskoy SSR. 2. AN
Latviyskoy SSR (for Vanag).
(Indanone)

NEYLAND, O. [Neilands, O.]; VANAG, G. [Vanags, G.] akademik

New method for the production of iodonium compounds. Dokl.
AN SSSR 141 no.4:872-874 D '61. (MIRA 14:11)

1. Rzhskiy politekhnicheskii institut. 2. AN Latvyskoy
SSR (for Vanag). (Iodonium compounds)

DUMPIS, T.T.; VANAG, G.Ya. [Vanags, G.], akademik

Synthesis of 2-aralkyl-1, 3-indandiones by the catalytic
hydrogenation of 2-aralkylidene-1,3-indandione. Dokl. AN
SSSR 141 no.5:1093-1096 D '61. (MIRA 14:12)

1. Institut organicheskogo sinteza AN Latviyskoy SSR. 2. AN
Latviyskoy SSR (for Vanag). (Indandione)

STANKEVICH, E.I. [Stankevics, E.]; VANAG, G.Ya. [Vanags, G.]

Polynuclear heterocyclic compounds. Part 5: Addition of dimedon
imines to 2-arylidene-1,3-indandiones. Zhur.ob.khim. 32 no.4:
1146-1151 Ap '62. (MIRA 15:4)

1. Institut organicheskogo sinteza AN Latvyskoy SSR.
(Cyclohexanedione) (Indandione) (Heterocyclic compounds)

VANAG, G.Ya. [Vanags, G.]; OZOLA, E.Ya.

Polynuclear heterocyclic compounds. Part 6: 4,6-Diphenyl-2,3(CO)-
benzoylpyridine. Zhur.ob.khim. 32 no.4:1151-1159 Ap '62.
(MIRA 15:4)

1. Institut organicheskogo sinteza AN Latvyskoy SSR.
(Pyridine) (Heterocyclic compounds)

STRAKOV, A.Ya.; GUDRINIYETSE, E.Yu. [Gudriniece, E.]; VANAG, G.Ya. [Vanags, G.]

Sulfonation of β -diketones. Part 17: Sulfonation of 2-anisyl-1,3-indandione. Zhur.ob.khim. 32 no.6:1811-1816 Je '62. (MIRA 15:6)

1. Rzhakly politekhnicheskyy institut.
(Indandione) (Sulfonation)

FREYMANIS, Ya.F. [Freimanis, J.] & VANAG, G.Ya. [Vanaga, G.]

Imines of di- and polyketones. Part 10: Alkylation of 2-methyl-
and 2-phenyl-1,3-indandione imines. Zhur.ob.khim. 32 no.7:2140-
2146 J1 '62. (MIRA 15:7)

1. Institut organicheskogo sinteza AN Latvyskoy SSR.
(Indandione) (Imines) (Alkylation)

GREN, E.; STRAZDYN', A. [Strazdins, A.]; VANAG, G. [Vanags, G.]

2-Aryl-4,5,6,7-tetrahydroxy-1,3-indandiones. Zhur.ob.khim. 32
no.9:2867-2871 S '62. (MIRA 15:9)

1. Institut organicheskogo sinteza AN Latvyskoy SSR.
(Indandione)

ZHAGAT, R. A.; VANAG, G. Ya. [Vanags, G.]

Acylation of bindone. Zhur. ob. khim. 32 no.12:3925-3930
D '62. (MIRA 16:1)

1. Institut organicheskogo sinteza AN Latvyskoy SSR.

(Bindone) (Acylation)

DUMPIS, T.T.; VANAG, G.Ya. [Yanags, G.], akademik

Production of 2-aryl-1-indan-3-ols by the catalytic hydrogenation
of 2-aryl-1,3-indandiones. Dokl. AN SSSR 142 no.1:92-95 Ja '62.
(MIRA 14:12)

1. Institut organicheskogo sinteza AN Latvyskoy SSR. 2. AN
Latvyskoy SSR (for Vanag).
(Indanol) (Indandione)

DUMPIS, T.T.; VANAG, G.Ya. [Vanags, G.], akademik

Catalytic hydrogenation of 2-substituted 1,3-indandiones to corresponding 1,3-indandiolis. Dokl. AN SSSR 142 no.2:362-365 (MIRA 15:2) Ja '62.

1. Institut organicheskogo sinteza AN Latvyskoy SSR.
2. AN Latvyskoy SSR (for Vanag).
(Indandione)
(Indandiol)

DUMPIS, T.T.; VANAG, G.Ya. [Vanags, G.] akademik

Production of 2-aralkyl-1-indanone-3-ols by the catalytic
hydrogenation of 2-arylidene-1,3-indandiones. Dokl. AN
SSSR 142 no.6:1308-1311 F '62. (MIRA 15:2)

1. Institut organicheskogo sinteza AN Latvyskoy SSR.
2. AN Latvyskoy SSR (for Vanag).
(Indanone)
(Indandione)

FREYMANIS, Ya.F. [Freimanis, J.]; VANAG, G.Ya. [Vanags, G.]

Salts of 3-aminoindones. Dokl. AN SSSR 143 no.2:354-357
Mr '62. (MIRA 15:3)

1. Institut organicheskogo sinteza AN Latvyskoy SSR. 2. AN
Latviyskoy SSR (for Vanag).
(Indone)

AREN, A.K. [Arens, A.]; MIKSTAYS, U.Ya. [Mikstais, U.]; VANAG, G.Ya.
[Vanags, G.], akademik

2-Ethylenimino-2-anisyl-1,3-indandione. Dokl.AN SSSR 145
no.6:1279-1281 Ag '62. (MIRA 15:8)

1. Rzhskiy politekhnicheskij institut. 2. AN Latvyskoy SSR
(for Vanag).
(Indandione)

VANAG, G. Ya. [Vanags, G.], akademik; GUDRINIYETSE, E. Yu. [Gudriniece, E.]
MEYROVITS, I. A.

2-Phenyl-1,3-perinaphthindandione and some of its derivatives.
Dokl. AN SSSR 146 no.1:93-96 S '62. (MIRA 15:9)

1. Rzhskiy politekhnicheskij institut. 1. AN Latvyskoy SSR
(for Vanag). (Phenalenedione)